

## COMMENTS AND RESPONSE

In view of the comments below, Applicant respectfully requests that the Examiner reconsider the present application including rejected claims, as amended, and withdraw the claim rejections.

### *Claim Objections*

The Examiner has objected claims 1-21 because of a number of informalities. By this response Applicant has addressed each of these informalities.

The Examiner asserted that in claim 1 the term “differential mixer” should be changed to --a first differential mixer--, the term “a pulse generator” should be changed to --a first pulse generator--, and the term “a pulse sequence” should be changed to --a first pulse sequence--, to account for the fact that a “second” of each of these elements is recited in claims 17-19.

However, Applicant believes that including the reference “first” in claim 1, where there is no “second” would be potentially confusing. Therefore, they have instead amended claim 17 to recite that the differential mixer is a first differential mixer, the pulse generator is a first pulse generator, and the pulse sequence is a first pulse sequence, and have amended claim 19 to recite that the pulse generator is a first pulse generator, and the pulse sequence is a first pulse sequence. Appropriate amendments have been made in these claims to account for this new language. This should avoid any indefiniteness in claims 17-19.

Applicant has made the amendments suggested by the Examiner with regard to claims 17, 18, and 20 with regard to further defining the recitations of “the input.”

Therefore, for at least the reasons given above claims 1-21 are definite. Applicant respectfully requests that the Examiner withdraw the objection of claims 1-21.

***Claim Rejections 35 USC § 102***

The Examiner has rejected claim 22 under 35 U.S.C. § 102(e) as being allegedly anticipated by United States Patent No. 6,559,996 to Miyamoto et al. (“Miyamoto”). Applicant respectfully traverses this rejection.

Claim 22 recites “mixing the non-return-to-zero sequence of pulses with the pulse sequence to produce a sequence of shaped ultra wideband wavelets, each wavelet having a predetermined shape having the data encoded therein.” The Examiner has asserted that this feature is disclosed in the optical intensity modulator 4 of Miyamoto. However, a careful examination of Miyamoto will show that this is not the case.

Miyamoto discloses an optical intensity modulator 4 which folds a ternary differentiated pulse along the second level of the differentiated pulse, and modulates a continuous optical signal with the differentiated pulse. Various alternate designs are disclosed in alternate embodiments. (See, e.g., Miyamoto, column 7, lines 52-58, column 8, lines 6-12, column 9, lines 37-40, and FIGs. 1, 6, and 10.)

In each disclosed embodiment, Miyamoto discloses the use of an optical intensity modulator 4 to produce an RZ optical signal. But nothing in Miyamoto discloses or suggests the generation of a sequence of shaped ultra wideband wavelets as disclosed in the specification.

In an effort to expedite prosecution, Applicant has amended claim 22 to recite “mixing the non-return-to-zero sequence of pulses with the pulse sequence to produce a sequence of shaped ultra wideband wavelets in a radio frequency.” Miyamoto clearly does not disclose producing shaped ultra wideband wavelets in a radio frequency. Support for this amendment can be found, for example, in Applicant’s specification on page 1, lines 9-12.

Therefore, based on at least the reasons given above, Applicant respectfully requests that the Examiner withdraw the rejection of claim 22 under 35 U.S.C. § 102(e) as being allegedly anticipated by Miyamoto.

### ***Allowable Subject Matter***

The Examiner has indicated that claims 1-21 would be allowable if rewritten to overcome the objections set forth in the pending Office Action. As noted above, Applicant has addressed those objections. Therefore, claims 1-21 are in a condition that the Examiner has indicated would be allowable.

The Examiner objected to claims 23-30 as being dependent upon a rejected base claim, but indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

By this response Applicant has amended claim 23 to include all of the limitations of claim 22. Claims 24-29 variously depend from claim 22. This places claims 23-29 in a condition that the Examiner has indicated would be allowable.

Claim 30 remains dependant on claim 22, which is allowable for at least the reasons given above. Thus, claim 30 should no longer be dependant on a rejected base claim.

### ***Conclusion***

Accordingly, Applicant respectfully submits that the claim, as amended, clearly and patentably distinguishes over the cited references of record and as such is deemed allowable. Such allowance is hereby earnestly and respectfully solicited at an early date. If the Examiner has any suggestions, comments, or questions, calls are welcome at the telephone number below.

Appl. No. 09/685,205  
Amendment dated April 19, 2005  
Reply to Office Action of January 19, 2005

Although it is not anticipated that any additional fees are due or payable, the  
Commissioner is hereby authorized to charge any fees that may be required to Deposit Account  
No. **50-1147**.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Brian C. Altmiller", is written over a horizontal line.

Brian C. Altmiller  
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